

HYTRON Engineering NEWS RELEASE

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E-102
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CONFIDENTIAL
Hytron Type 3D21
(Development Type D21)
Original Issued: 5-1-45
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The type 3D21 tube has been developed primarily as a high-vacuum blocking oscillator and a pulse modulator. Satisfactory pulse operation is assured by many tests including the following performed on every 3D21 tube: pulse grid, screen, and plate characteristics, high voltage pulse operation and high voltage plate current cut-off. The type 3D21 is of such a construction as to utilize high-production receiving-tube manufacturing techniques, thereby relieving production and material shortages existent with hard glass transmitting tubes. The 3D21 is small in diameter and light in weight and it uses a regular octal socket.

The 3D21 is recommended as a modulator for either one or two type 2C26A oscillators or other applications requiring as high as 20kw power in the pulse. The 3D21 is also suitable for use as a deflection amplifier.

TENTATIVE DATA Average Static Characteristics

Heater potential	6.3 or 12.6 volts AC or DC
Heater Current	1.70 or 0.85 amperes
Grid Bias	-30 volts DC
Screen Potential	300 volts DC
Plate Potential	600 volts DC
Screen Current	2.5 ma DC approx.
Plate Current	30 ma DC approx.
Transconductance	5500 micromhos

Recommended Pulse Operation Conditions and Maximum Ratings

Heater Potential	6.3 or 12.6 volts (±10%) Note 1
Maximum Plate Dissipation	15 watts
Maximum Screen Dissipation	3 watts
Maximum Grid Dissipation	0.5 watt
Maximum Plate Supply Potential	3500 volts DC Note 2 & 3
Maximum Peak Plate Potential Including Transient	5000 volts
Maximum Screen Supply Potential	850 volts DC Note 3
Maximum Negative Grid Potential Including Transient	-500 volts peak
Maximum Positive Peak Grid Potential	220 volts
Maximum Heater Cathode Potential	150 volts
Maximum Pulse Length	10 microseconds Note 4

For further information write Commercial Engineering Department, Hytron Radio & Electronics Corp.,
Salem, Mass., or telephone Salem 2260

RMA

HYTRON RADIO AND ELECTRONICS CORPORATION

Hytron Type 3D21
(Development Type D21)

For 3500 volt operation

$E_{c2} = 800$ volts, $R_L = 450$ ohms, $E_{c1} = -150$ volts
 E_{sig} (peak above ground) = 150 to 200 volts

$P_o = 21\text{kw}$ approx.

For 2500 volt operation

$E_{c2} = 800$ volts, $R_L = 305$ ohms, $E_{c1} = -150$ volts
 E_{sig} (peak above ground) = 150 to 200 volts

$P_o = 14\text{kw}$ approx.

For 1500 volt operation

$E_{c2} = 800$ volts, $R_L = 160$ ohms, $E_{c1} = -150$ volts
 E_{sig} (peak above ground) = 150 to 200 volts

$P_o = 7\text{kw}$ approx.

Physical Characteristics

Base	8-pin low loss medium shell octal
Envelope	ST-14
Top Cap	Skirted miniature
Max. Height	4-13/16 inch
Seated Height	4-1/8 inch approx.
Max. Diameter	1-13/16 inch
Weight	1-3/4 ounce approx.

Basing Connections

Pin #1	Heater center tap
Pin #2	Heater
Pin #3	NC
Pin #4	Screen grid
Pin #5	NC
Pin #6	Control grid
Pin #7	Heater
Pin #8	Cathode and beam plates
Top cap	Plate

Note 1. Cathode must be preheated for minimum of 30 seconds before applying grid pulse.

Note 2. With a screen potential not exceeding 400 volts DC and when no instantaneous plate voltage due to transient is present (essentially resistive plate load), a maximum plate potential of 4500 volts DC may be used.

Note 3. Series resistance must be inserted in the power supply to limit the DC short circuit current to less than 0.5 ampere.

Note 4. Total pulse length in any 240 microsecond period not to exceed 12 microseconds.